Preventing Heat Stress & Dehydration

Gulf Region Division

U.S. Army Corps of Engineers

Part I-Heat Stress General Information

- Heat can put the body under stress
- Physical activity can elevate stress levels
- Death is possible
- This objective of this training will be to make you knowledgeable in
  - Ways to prevent heat stress
  - How to recognize heat stress problems
  - First aid for heat stress illnesses

Factors That Can Cause Heat Stress in Workers

- Elevated ambient temperatures
- High per cent of humidity in the air
- Little/no air movement
- High radiant temperature
- Wrong type clothing being worn
- Heavy physical activity being undertaken

Acclimatization to Hot Weather

- Body can adjust to elevated temps over time
  - Increasing time in heat each day
  - Amount of sunshine, humidity, air movement all affect acclimatization rate
  - Changing conditions, i.e., hot to cool, cool to hot can affect the acclimatization rate.
- Allow for acclimatization if possible

Use of Engineering Controls To Reduce Heat Stress

- Use of fans to move the air where or when practical
- Use of air-conditioning when possible
- Use of air conditioned rest/break areas
- Reduce the physical demands on the work force by using mechanical equipment

Administrative Controls to Control Heat Stress

- Increase frequency and duration of rest breaks
- Schedule tasks to avoid heavy physical activity during hottest part of the day
- Provide adequate, cool potable water
- Use additional workers for the job
- Slow down pace of operation

Common Sense Precautions

- Wear lightweight clothing which will allow for quick evaporation
- Make sure employees do not wear clothing which restricts evaporation
- Talk to employees and ask about their hydration and urination frequencies

Types of Heat Stress Injuries

- Some are annoying
- Some are serious
- Some can be life threatening

Heat Stress-Knowing What To Look For

- Personnel at risk
  - Overweight individuals
  - Physically unfit persons
  - Pre-existing heart condition
  - Those who drink too much alcohol
  - Those who have previously had heat problems
- Pay Special attention to those who are not acclimated

Heat Rash

- Bumpy red rash which itches severely. Caused by high temps and humidity. Annoying but not dangerous.
- Treatment
  - Dry clothes will help
  - Washing frequently and drying often
  - Use anti-itch ointment

Heat Cramps

- Severe muscle cramps caused by a loss of body salt through sweating.
- Prevention
  - Hydration. Do not drink fluids with caffeine
  - Use moderate salt in food
- Watch carefully for more serious heat stress symptoms.
- If cramps persist, seek medical attention

Heat Syncope (“sin-co-pay”)

- Sudden fainting caused by a reduced flow of blood to the head due to the heat. Victim’s skin will be cool and moist with weak pulse.
- Seek immediate medical attention

Heat Exhaustion

- Caused by a lack of salt and water intake. Heavy sweating, skin will be cool and moist with weak pulse. Victim will act confused, tired clumsy, and irritable. Rapid breathing.
- Seek immediate medical attention. Cool the victim and offer sips of water. Can lead to heat stroke.

Heat Stoke

- Deadliest of the heat stress conditions. Body shuts down because of extreme loss of fluids and salts. Temperature will rise, skin is red and dry, fast pulse and usually a severe headache. Convulsions may occur.
- Seek immediate medical help. Keep calm, cool, and offers sips of water if victim is conscious

Awareness Is The Key

- Know and be able to recognize symptoms. Often times victim will not recognize what is happening.
- Develop “Buddy System” and watch each other.
- Control those factors which you can control in avoiding heat stress problems.
- Seek medical assistance when needed.

Part II-Dehydration

- Most common of heat diseases
- Minor to Dangerous in Consequences
- Loss of body water and salts
- Classified as:
  - Mild dehydration (loss of 5% or less)
  - Moderate dehydration (Loss of 6-10%)
  - Severe Dehydration (15% or more)

Levels of Dehydration

- Mild Dehydration: not too dangerous can be cured by drinking fluids
- Moderate Dehydration: May require medical treatment. Must hydrate immediately
- Severe: Medical emergency. Death can occur

Causes of Dehydration

- Over exposure to the sun or heat
- Other causes
  - Vomiting
  - Diarrhea
  - High fever
  - Drug induced, i.e., diuretics

Prevention

- Drink plenty of non-caffeine fluids
- Keep check on intake and outflow
- Schedule physical activities in cooler part of day if possible
- Water with a little salt will do wonders. Gatorade or similar drinks is good to replace electrolyte loss.
- Weigh yourself often if possible

Symptoms of Dehydration

- Dry mouth with sticky membranes
- Decreased urine output
- Dark colored urine can mean dehydration
- Sunken eyes
- Severe headaches
- Fatigue
- Dizziness and confusion
- Low blood pressure
- Severe thirst
- Increased heart rate and breathing
- Wrinkled skin lacks normal elasticity

Treatment For Dehydration

- Mild Dehydration: hydrate in the office or in your quarters.
- Moderate Dehydration: Drink fluids and if symptoms persist seek medical assistance.
- Severe Dehydration: Seek medical assistance immediately. May be life threatening

Conclusion

- Heat Stress and dehydration can be life threatening
- Know the symptoms and treatments
- Seek medical advice when unsure
- Watch your workers and peers
- Make sensible decisions based on knowledge not on hunches
- Essayons!!